

AMENDMENTS TO THE DRAWINGS

Pursuant to 37 C.F.R. § 1.83(a), the drawings must show every feature of the invention specified in the claims. M.P.E.P. § 608.02(d). Accordingly, Applicant hereby amends the drawing to show such “predetermined fracture points” (10) in the region of the projectile tip. A replacement drawing is attached. No new matter is added.

REMARKS**I. Introduction**

Claims 1-10, 22, and 23 are pending in this application. By this Amendment, claims 1-3 and 5-9 are amended to more clearly recite the features of the invention. Claims 11-21 are hereby canceled and new claims 22 and 23 are added to recite the predetermined fracture points in the region of the projectile tip and that the heavy metal fragments fill at least half of the hollow interior space, respectively. The disclosure and drawing figure are also amended as further described below. It is respectfully submitted that the Application is in condition for allowance. Reconsideration is respectfully requested.

II. Specification and Drawings

By this Amendment, claim 22 is added to recite “predetermined fracture points in the region of the projectile tip to assure a reproducible ejection of the heavy metal fragments when the pyrotechnical ejector charge is activated during the flight of the projectile.” Pursuant to 37 C.F.R. § 1.83(a), the drawings must show every feature of the invention specified in the claims. M.P.E.P. § 608.02(d). Accordingly, Applicant hereby amends the drawing to show such “predetermined fracture points” (10) in the region of the projectile tip. No new matter is added. See paragraph 0016 of the disclosure which is also amended herein to provide a reference numeral (10) for indicating the predetermined fracture points in the region of the projectile tip.

III. Claim Rejections Under 35 U.S.C. §112

In the Office Action dated September 14, 2005, claim 21 is rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claim 21 is also rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. By this Amendment, claim 21 is canceled, thus rendering the rejections moot.

IV. Claim Rejections Under 35 U.S.C. §103(a)

In the Office Action, claims 1-3, 7-9, 12, 13, 17-19, and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over DE 100 57 673 (DE '673), as translated in U.S. 6,536,351. By this Amendment, Applicant amends claims 1-3 and 5-9 to more clearly recite the features of the invention. In view of the foregoing amendments and following remarks, it is respectfully submitted that the pending claims are not unpatentable over DE '673. Furthermore, by this Amendment, claims 11-21 are canceled, thus rendering the rejection moot with regard to claims 12, 13, 17-19, and 21.

The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. *See, e.g., In re Keller*, 642 F.2d 413, 425, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981). In establishing a *prima facie* case of obviousness, it is incumbent upon the Examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. *See Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. & Int. 1985). Additionally, *all the claim limitations must be taught or suggested by the prior art*. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974) (emphasis added). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). *See M.P.E.P. §2143.03*.

In this case, claim 1 recites:

A fragment projectile, comprising:
a projectile casing defining a hollow interior space;
heavy metal fragments at least partially filling the
hollow interior space;
a pyrotechnical ejector charge disposed in a rear of the
hollow interior space, *wherein the heavy metal fragments fill more of
the hollow interior space than the pyrotechnical ejector charge and
any explosive charge*, and wherein the pyrotechnical ejector charge,
when activated during the flight of the projectile, forces the heavy
metal fragments out of the hollow interior space through a projectile
tip at a front of the projectile casing; and
means for activating the pyrotechnical ejector charge at
a desired time during the flight of the projectile. (emphasis added)

Support for the highlighted language is provided in the drawing as well as paragraph 0007 of the disclosure. Specifically, paragraph 0007 states, “[t]he invention is essentially based on the concept of omitting the use of explosives in the fragment projectile, and filling the space required for the explosive with fragments. A relatively compact pyrotechnical ejector charge effects the ejection of the fragments at a desired, e.g., predetermined time.” Thus, the fragment projectile recited in claim 1 of the instant application has a projectile casing defining a hollow interior space including heavy metal fragments and a pyrotechnical ejector charge therein, the heavy metal fragments filling more of the hollow interior space than the pyrotechnical ejector charge and any explosive charge.

In contrast, previous fragment projectiles generally have a low percentage by mass of fragments relative to the projectile weight, which reduces overall effectiveness. DE ‘673 (as translated in U.S. 6,536,351), for example, teaches heavy metal fragments in the form of a fragment plate 4 positioned near a front of the warhead 1 with the majority of the warhead interior containing explosive charge 5 (made up of four partial charges 7-10) filling a majority of the warhead 1, the second partial charges 8-10 thereof being for accelerating fragments laterally or for creating a lateral pressure wave (*see column 1, line 50 – column 2, line 15 in the ‘351 translation*). The DE ‘673 warhead, thus, does not teach or suggest heavy metal fragments filling more of the hollow interior space than the explosive charges 7-10 as required by claim 1.

Claim 1 further recites a *pyrotechnical* ejector charge disposed in a rear of the hollow interior space which, when activated during the flight of the projectile, forces the heavy metal fragments out of the hollow interior space through a projectile tip at a front of the projectile casing. At page 5, paragraph 7 of the Office Action, claim 11 was rejected under 35 U.S.C. §103(a) over DE ‘673 in view of U.S. Patent No. 6,041,713 to Altenau. The Office Action acknowledges that DE ‘673 does not suggest employing a pyrotechnical ejector charge as required by amended claim 1 and cites Altenau as teaching such a pyrotechnical ejector charge. Altenau, however, teaches a *practice projectile* 1 for artillery weapons which is disclosed as being an alternative to live projectiles in practice situations. Accordingly, Applicants respectfully submit that there is no suggestion or motivation for one of ordinary skill in the art to modify the live warhead disclosed in DE ‘673 according to the practice projectile taught in Altenau.

In view of the foregoing amendments and remarks regarding claim 1, it is respectfully submitted that DE '673 does not render obvious claim 1 and, therefore, rejection under 35 U.S.C. §103(a) is inappropriate. As a result, it is respectfully requested that the rejection be withdrawn and claim 1 be indicated as being allowable. Claims 2-10, 22, and 23 depend directly and indirectly therefrom and are submitted to be allowable for at least the same reasons.

At page 4, paragraph 5 of the Office Action, claims 4-6 and 14-16 were rejected under 35 U.S.C. §103(a) over DE '673 in view of U.S. Patent No. 4,970,960 to Feldmann. By this Amendment, claims 1-3 and 5-9 are amended and claims 11-21 are canceled. With regard to claims 4-6, Applicant respectfully submits that Feldmann does not remedy the deficiencies of DE '673 discussed above. For at least these reasons, it is respectfully submitted that the combination of DE '673 and Feldmann does not suggest the features of claims 4-6. As a result, it is respectfully requested that the rejection be withdrawn. With regard to claims 14-16, the rejection is rendered moot by the cancellation of claims 14-16.

At page 5, paragraph 6 of the Office Action, claim 10 was rejected under 35 U.S.C. §103(a) over DE '673 in view of DE 15 78 135 (DE '135). The rejection of claim 10 is respectfully traversed. DE '135 does not remedy the deficiencies of DE '673 discussed above with regard to claim 1. For at least this reason, it is respectfully submitted that the combination of DE '673 and DE '135 does not suggest the features of claim 10. As a result, it is respectfully requested that the rejection be withdrawn.

V. Conclusion

In view of the forgoing, it is respectfully submitted that claims 1-10, 22, and 23 are allowable and that the application is in condition for allowance. An early notice to that effect is respectfully requested. It is not believed that extensions of time or other fees are required beyond those that may otherwise be provided for in documents accompanying this paper. If, however, additional extensions of time are needed to prevent abandonment of this application, such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims or any other fee deficiency), are hereby authorized to be charged, and any overpayments credited to, our Deposit Account No. 22-0261.

The Examiner is respectfully requested to contact Applicant's undersigned Representative if necessary to place the application in condition for allowance. Prompt reconsideration is respectfully requested.

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Respectfully submitted,

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